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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,783	08/02/2004	Cheng-Yi Huang	REAP0100USA	4782

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NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER
PHU, PHUONG M

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
10/15/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

winstonhsu.uspto@gmail.com
Patent.admin.uspto.Rcv@naipo.com
mis.ap.uspto@naipo.com.tw

T.H

Office Action Summary	Application No.	Applicant(s)	
	10/710,783	HUANG ET AL.	
	Examiner	Art Unit	
	Phuong Phu	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-18* is/are rejected.

7)☒ Claim(s) *8,9,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/19/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 10-18 are are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang (2004/0136474).

-Regarding claim 1, Hwang discloses a carrier recovery system (see figure 2) comprising:

an in-phase mixer (included in (203)) for mixing an incoming signal with an in-phase reference signal "cosine wave" to produce an in-phase baseband signal (i(t)) (see [0021]);

a quadrature-phase mixer (included in (203)) for mixing the incoming signal with a quadrature-phase reference signal "sine wave" to produce a quadrature-phase baseband signal "q(t)" (see [0021]);

a DC detector (comprising (208)) for measuring and providing a error signal "phase error" derived from the DC component of the quadrature-phase baseband signal, (see [0026]), (the error signal considered here equivalent with the limitation "DC offset of the quadrature-phase baseband signal"); and

a frequency synthesizer (210) for generating the in-phase reference signal and the quadrature-phase reference signal according to the DC offset measured by the DC detector (see [0021, 0026]).

-Regarding claim 2, Hwang discloses that the carrier recover system locks the quadrature-phase reference signal and the in-phase reference signal to a selected channel in an Advanced Television Systems Committee (ATSC) digital television (DTV) receiver (see [0005, 0006, 0027].

-Regarding claim 3, Hwang discloses that the incoming signal corresponds to a received vestigial sideband (VSB) signal (see [0006]).

-Regarding claim 4, Hwang discloses that the frequency synthesizer generates the in-phase reference signal and the quadrature-phase reference signal to inherently minimize the DC offset of the quadrature-phase baseband signal when a frequency of a pilot, a component of carrier present in the incoming signal, and a frequency component of the carrier generated by frequency synthesizer are identical exactly (see [0027]).

-Regarding claim 5, Hwang discloses that the quadrature-phase mixer comprises a first low-pass filter (205) receiving the quadrature-phase baseband signal for filtering out the high frequency term of the quadrature-phase baseband signal (see figure 2).

-Regarding claim 6, Hwang discloses that the frequency synthesizer comprises a loop filter (209), (considered here equivalent with the limitation "second low-pass filter"), coupled to the DC detector and the frequency synthesizer (see figure 2, [0026]).

-Regarding claim 7, as applied to claim 6, Hwang discloses that the second low-pass filter is a loop filter.

-Regarding claim 10, Hwang discloses that the in-phase mixer comprises a third low-pass filter (204) of receiving the in-phase baseband signal for filtering out a high frequency term of the in-phase baseband signal (see figure 2).

-Regarding claim 11, as similarly applied to claims 1-7, set forth above and herein incorporated, Hwang discloses a method (see figure 2) of carrier recovery comprising:

procedure (included in (203)) of mixing an incoming signal with an in-phase reference signal to produce an in-phase baseband signal (i(t));

procedure (included in (203)) of mixing the incoming signal with a quadrature-phase reference signal to produce a quadrature-phase baseband signal (q(t));

procedure (comprising (208)) of measuring a DC offset of the quadrature-phase baseband signal; and

procedure (210) of generating the in-phase reference signal "cosine wave" and the quadrature-phase reference signal "sine wave" according to the DC offset of the quadrature-phase baseband signal.

-Claim 12 is rejected with similar reasons set forth for claim 2.

-Regarding claim 13, in Hwang, the quadrature-phase reference signal as a sine wave, inherently is the in-phase reference signal, as a cosine wave, phase-delayed by ninety degrees.

-Claim 14 is rejected with similar reasons set forth for claim 3.

-Regarding claim 15, Hwang discloses that the DC offset of the quadrature-phase baseband signal is caused by to a pilot tone of the VSB signal for a selected carrier (see [0010]).

-Claim 16 is rejected with similar reasons set forth for claim 4.

-Claim 17 is rejected with similar reasons set forth for claim 5.

-Claim 18 is rejected with similar reasons set forth for claim 10.

3. Claims 1, 2, 4-7, 10-13 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Jaffe (7,239,357).

-Regarding claim 1, see figure 2 and col. 4, line 35 to col. 5, line 15, Jaffe discloses a carrier recovery system (see figure 2) comprising:

an in-phase mixer (226) for mixing an incoming signal with an in-phase reference signal (cos) to produce an in-phase baseband signal;

a quadrature-phase mixer (230) for mixing the incoming signal with a quadrature-phase reference signal (sin) to produce a quadrature-phase baseband signal;

a DC detector (comprising (240, 238)) for measuring an error signal from DC component of the quadrature-phase baseband signal (see col. 4, lines 52-62), (the error signal considered here equivalent with the limitation " DC offset of the quadrature-phase baseband signal"); and

a frequency synthesizer (228) for generating the in-phase reference signal and the quadrature-phase reference signal according to the DC offset measured by the DC detector.

-Regarding claim 2, Jaffe discloses that the carrier recover system locks the quadrature-phase reference signal and the in-phase reference signal to a selected channel in a receiver (see figure 2), (the receiver considered here equivalent with the limitation "Advanced Television Systems Committee (ATSC) digital television (DTV) receiver").

-Regarding claim 4, Jaffe discloses that the frequency synthesizer generates the in-phase reference signal and the quadrature-phase reference signal to inherently minimize the DC offset "error signal" of the quadrature-phase baseband signal when the incoming signal is down-converted to DC at the output of a mixer comprising the in-phase mixer and quadrature-phase mixer (see col. 4, lines 52-62).

-Regarding claim 5, Jaffe discloses that the quadrature-phase mixer comprises a first low-pass filter (236) receiving the quadrature-phase baseband signal for filtering out the high frequency term of the quadrature-phase baseband signal (see figure 2).

-Regarding claim 6, Jaffe discloses that the frequency synthesizer comprises a loop filter (238), considered here equivalent with the limitation "second low-pass filter", coupled to the DC detector and the frequency synthesizer (see figure 2).

-Regarding claim 7, as applied to claim 6, in Jaffe, the second low-pass filter is a loop filter.

-Regarding claim 10, Jaffe discloses that the in-phase mixer comprises a third low-pass filter (232) receiving the in-phase baseband signal for filtering out a high frequency term of the in-phase baseband signal (see figure 2).

-Regarding claim 11, as similarly applied to claims 1 2, 4-7 and 10 set forth above and herein incorporated, Jaffe discloses a method (see figure 2) of carrier recovery comprising:

procedure (226) of mixing an incoming signal with an in-phase reference signal to produce an in-phase baseband signal;

procedure (230) of mixing the incoming signal with a quadrature-phase reference signal to produce a quadrature-phase baseband signal;

procedure (comprising (238, 240)) of measuring a DC offset of the quadrature-phase baseband signal; and

procedure (228) of generating the in-phase reference signal and the quadrature-phase reference signal according to the DC offset of the quadrature-phase baseband signal.

-Claim 12 is rejected with similar reasons set forth for claim 2.

-Regarding claim 13, in Jaffe, the quadrature-phase reference signal as a sine wave, inherently is the in-phase reference signal, as a cosine wave, phase-delayed by ninety degrees.

-Claim 16 is rejected with similar reasons set forth for claim 4.

-Claim 17 is rejected with similar reasons set forth for claim 5.

-Claim 18 is rejected with similar reasons set forth for claim 10.

Allowable Subject Matter

4. Claims 8, 9, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (8:00 AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phuong Phu
Primary Examiner
Art Unit 2611

Phuong Phu
PHUONG PHU
PRIMARY EXAMINER

Phuong Phu
09/28/07